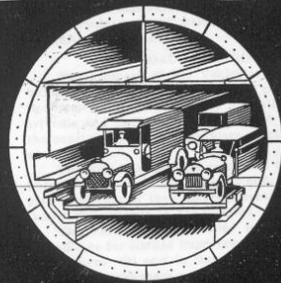
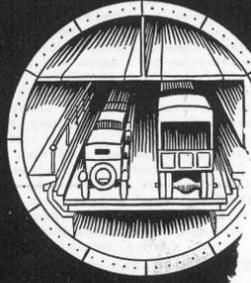


JERSEY CITY

NOVEMBER
1927



VEHICULAR
TUNNEL
EDITION



ADVERTISERS' ART



HOLLAND TUNNEL—VIADUCT TO JERSEY CITY ENTRANCE



8 15118









15166











USE RIGHT
SIDE LANE
WHEN APPROACHING
BRIDGE

NEWARK
SHORE POINTS
TRENTON
CAMDEN

NEWARK ROUTES US
- NEWARK
- SHORE POINTS
- TRENTON
- CAMDEN

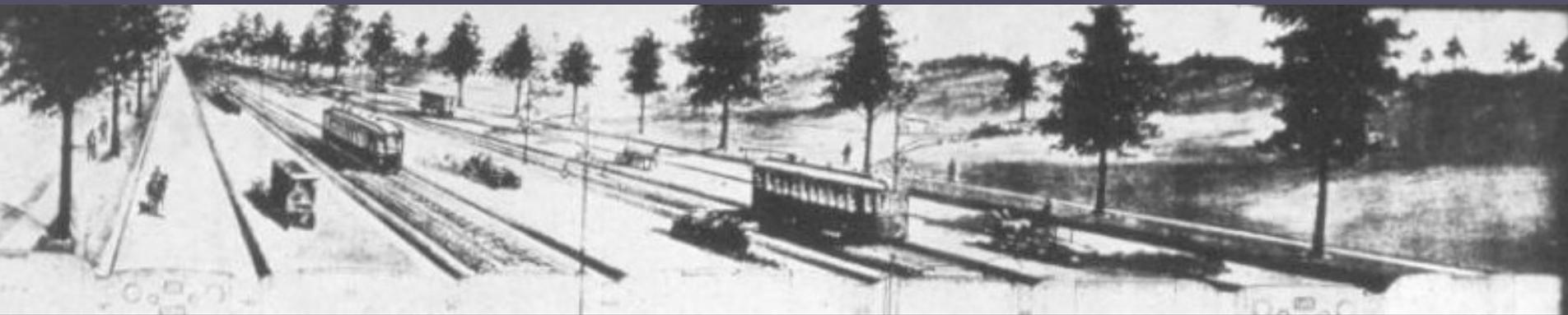














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Captions for Route 1 Extension Images Prepared by Lichtenstein Consulting Engineers, Inc.

1. The 13-mile long Holland Tunnel Approach Road from Elizabeth to the tunnel portal in Jersey City is considered by most scholars as the world's first superhighway. It was the first time in this country that economic theories of location and operation were applied to the planning and design of an unrestricted-use, vehicular highway, a concept that was not successfully repeated until the Pennsylvania Turnpike in the mid 1930s. The highway was designed and built by the New Jersey State Highway Commission to address the traffic introduced into the region by the tunnel. Note how the through highway bypasses the congested portion of Newark, provides access to Newark Airport and is carried through Jersey City on structure. Image prepared by Lichtenstein Consulting Engineers, Inc.

2. Cover to souvenir commemorating the opening of the Holland Tunnel on November 13, 1927. It provided the first vehicular, all-weather crossing of the Hudson River between Jersey City and Manhattan. Its opening dramatically increased the volume of traffic in Jersey City. Courtesy Jersey City Public Library, Holland Tunnel vertical file.

Ca. 1928 view of 12th Street Viaduct in Jersey City looking westerly. The viaduct took traffic from the level of city streets and the tunnel portals to Bergen Ridge. It was necessary to eliminate all at-grade crossings, which would delay through traffic, so the highway was carried on structure over local streets and railroad lines up to the ridge, where it enters a cut to traverse the ridge. Courtesy of Thomas Flagg Collection.

3. Ca. 1929 aerial view shows complete context of east end of new highway in busy Jersey City. It was designed to be a dualized, limited access highway carried on structure over existing streets and railroads. The solution is a masterful way of integrating an high-speed through highway into an already built-up area and to separate the various modes and levels of transportation. Courtesy: New Jersey State Archives, Department of State; Department of Transportation Collection ca. 1920-1979 photographs filed by subject, box 9, Jersey City aerial views folder.

4. View of west end of the 12th Street Viaduct as it nears the Hoboken Avenue Viaduct through the ridge. Note how the highway was integrated into the fabric of the community with old roads such as Hoboken Avenue snaking up Bergen Ridge in the right background and the Erie RR lines to the left of the highway. The design is pioneering in its segregation of rail and vehicular, through and local traffic. Image was used to illustrate Fred Lavis's 1931 article "Highway As Elements of Transportation" in ASCE's *Transactions* (vol. 95).

5. Contemporary through view of 12th Street Viaduct looking east approximately 25 yards east of Palisade Avenue. Eastbound access ramp to Route 1 Extension on right. Photo illustrates transition of local to through traffic lanes. Manhattan Skyline in background Photograph by Thomas Flagg and Gerald Weinstein, 2003. HAER No. NJ 138-27.

6. Much of the highway is carried through Jersey City on structure. Shorter spans are usually transverse girders (perpendicular to the roadway) supported on built up columns that have a flexible column at each expansion joint were used throughout the eastern end of the highway. HAER No. NJ 138-7.

7. Ca. 1929 aerial view of the Hoboken Viaduct that takes the highway through Bergen Ridge in a subway. The top or roof of the subway is a 4-lane local street, with opposing traffic separated by the ventilator panels. The Erie RR's Bergen Archways (open cut) is to the left of the viaduct. The two-level viaduct segregates through from local traffic and reflects Jersey City's desire to not have another open dividing the community. Note how the existing local streets were maintained. Courtesy: NJ State Archives (Collection of Department of Transportation, Ca. 1920-1979 Photographs Filed by Subject, Box 9, Jersey City Aerial Views Folder).

8. The two-level, 3,400'-long Hoboken Viaduct was a brilliant solution. The through road is located in a cut through the rock ridge. The cut is effectively closed by placing a much-needed local street on its roof that is supported by the transverse girders. Note the ventilator panels and open south wall on the lower level that provide natural ventilation for the subway portion. This eliminated the need for mechanical ventilation. Photographs by Thomas Flagg and Gerald Weinstein, 2003.

9. 2003 view of east portal to Hoboken Viaduct. Photograph by Thomas Flagg.

10. Route 1 Extension passing over former Erie RR (then Conrail). JFK Boulevard overpass bridge in distance. Like so much of the highway in Jersey City, it is carried on structure over existing features, like railroad, local streets, and factories. Photograph by Thomas Flagg and Gerald Weinstein, 2003.

11. Controversy about what type of bridges to construct over the Hackensack and Passaic rivers delayed completion of the highway until 1932. The eastern end, completed and opened to traffic in 1929, terminated at Tonnele Circle as shown here. The highway to the right of Route 1 Extension is the old Lincoln Highway/Route 1. The JFK Blvd overpass is in the left foreground. Courtesy of NJDOT/BEA Collection.

12. Controlling the interchange between through highway and local streets, which are at a different grade, was a pioneering design feature of the highway. Here the through roadway divides to accommodate a central ramp from Tonnele Circle. The ramp to the right provides access from JFK Blvd. Note the granite paver wearing surface and original light standards and luminaires. Courtesy of NJDOT/BEA Collection.

13. Aerial view of Pulaski Skyway portion of the highway that was built 1929-1932. This portion of the highway, with its great cantilever thru truss bridges over the Hackensack and Passaic rivers, was the last part to be constructed owing to the controversy over whether to build lift or a fixed bridges over the rivers. Courtesy: Bruce Seely Collection.

14. Ironically, the best known element of the Holland Tunnel approach road, the Pulaski Skyway is the only section not built to the original design criteria that emphasized economic considerations like grades for efficient operation of trucks and travel-time delays. The War Department mandated that the bridges over the rivers have a 135' vertical clearance. New Jersey chose to use a high-rise design rather than movable spans. The cantilever thru truss bridges have 350'-long main spans and deck truss approach spans. HAER No. NJ-9-Jerci-10.5.

15. Ca. 1932 view of Pulaski Skyway roadway showing center access ramp. When the Skyway was designed and constructed, there was no precedent for access ramps to superhighways. The design was not successful for trucks because the grade is too great for them to safely merge with through traffic, so trucks were excluded from the Skyway shortly after it was completed in 1932.

16. Tonnele Circle proved to be too small to provide the needed level of service, so in the 1930s additional ramps between Route 1 Extension, US 1 & 9 and local streets were placed. The new ramps facilitated transition of truck traffic, which was banned from the Skyway, to the old Lincoln Highway route (US 1 & 9 T). The new ramp arrangement at Tonnele Circle is one of the few alterations to the original design of the easternmost 5 miles of Route 1 Extension, which was listed in the National Register of Historic Places as a historic district in 2005.

17. Because the 1923-1932 highway had been so carefully threaded through Jersey City, the only way to increase its capacity was to build a new road. The NJTP Hudson County Extension, built 1954-55, is seen soaring over Jersey City as it joins the old road at the 12th Street Viaduct. Photographer: Thomas Flagg.

18. Ca. 1910 rendering of Coleman du Pont's pioneering vision of a superhighway that illustrated his March, 1912 *Scientific American* article explaining his highway through Delaware. Note that each mode of transportation, from pedestrian to street railways, has its own dedicated right of way. du Pont's thinking about using railroad theories of location for vehicular highways influenced subsequent development of superhighways, particularly Route 1 Extension. Image created by Lichtenstein Consulting Engineers, Inc.

19. The 1919-1925 Bronx River Parkway in Westchester County, NY, perhaps the country's earliest designed, limited access, dualized public highway of any length, predates New Jersey's Route 1 Extension, but the New York road was a low-speed, scenic highway for automobiles only as illustrated in this 1926 view. Courtesy: Westchester County Archives PH 102.